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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kazunobu Kubota

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EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,007

Applicant(s)

KUBOTA, KAZUNOBU

Examiner

Devona E. Faulk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,12-14,24-26 and 36-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,12-14,24-26 and 36-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Response to Arguments

2. Applicant's arguments, filed 5/15/2006, with respect to the rejection(s) of claim(s) 1,2,8,13,14,20,25,26,32 and under 103 (a) have been fully considered and are persuasive regarding the integral multiple of the sampling period language. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sasson.

Applicant's arguments, regarding the plurality of changes in said information within a prescribed period of time, filed 5/15/2006 have been fully considered but they are not persuasive. The applicant asserts that the AAPA does not teach "when there are a plurality of changes in said information within a prescribed unit of time and generating a single modified information at the end of said prescribed unit of time based on said plurality of changes in information. The examiner asserts that the AAPA discloses when there are a plurality of changes in said information within a prescribed unit of time, generating a modified information change (1, Figure 4; page 3, Description of Related Art; AAPA, Figure 7 teaches of a plurality of changes (position, movement) in what is implicitly some time frame. The applicant's admitted prior art teaches that localization processing of a plurality of virtual acoustic images is performed within the audio processing unit each time there is a change in the position or movement information and that the position and movement information is used to perform virtual

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acoustic image localization. Each time denotes a given time unit. For a given time unit one change in position or movement generates a single modified information). AAPA fails to teach of generating single change based on said plurality of information changes but the examiner asserts that Mayer teaches this concept.

Mayer teaches of generating a single change at the end of a prescribed unit of time based on said plurality of information changes (column 24, lines 26-35; Mayer discloses a data processing system with programmable graphics generators and teaches of waiting until the end of a next vertical blanking interval before transferring a next instruction after a jump instruction (see column 23, line 64- column 24, line 5)). The examiner has modified the rejection so that this is clearly indicated. The plurality of changes being the changes in position of the electron gun that moves backup to a first line of the television screen. This is implicit to the vertical blanking interval.

Claims 3-7, 10, 11, 15-19, 22, 23, 27-31, 34, 35 were withdrawn from consideration because they were drawn to a non-elected species in a previous office action.

3. Claims 8, 9, 20, 21, 32 and 33 are cancelled.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims **1,2,13,14,25,26,32,37-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA, pages 1-4, Description of Related Art; Figure 4) in view of Mayer et al. (US 4,296,476) in further view of Sasson (US 4,695,874).

Claims **1, 13 and 25** share common elements.

Regarding **claims 1,13 and 25**, the AAPA discloses an audio signal processing method (Pages 1-4, Description of Related Art; Figure 4) that performs virtual acoustic image localization processing of digital audio signals based on at least one type of information among position information, movement information, and localization information (pages 1-3, Description of Related Art; Figure 4), the method comprising the steps of:

when there are a plurality of changes in said information within a prescribed unit of time, generating a modified information (1, Figure 4; page 3, Description of Related Art; AAPA, Figure 7 teaches of a plurality of changes (position,movement) in what is implicitly some time frame. The applicant's admitted prior art teaches that localization processing of a plurality of virtual acoustic images is performed within the audio processing unit each time there is a change in the position or movement information and that the position and movement information is used to perform virtual acoustic image localization. Each time denotes a given time unit. For a given time unit one change in position or movement generates a single modified information) ; and

performing virtual acoustic image localization processing for said audio signals based on said generated information change (pages 1-3, Description of Related Art).

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The AAPA fails to disclose but Mayer teaches of generating a single change at the end of a prescribed unit of time based on said plurality of information changes (column 24, lines 26-35; Mayer discloses a data processing system with programmable graphics generators and teaches of waiting until the end of a next vertical blanking interval before transferring a next instruction after a jump instruction ; The plurality of changes being the changes in position of the electron gun that moves backup to a first line of the television screen. This is implicit to the vertical blanking interval; see column 23, line 64- column 24, line 5).

It would have been obvious to modify the AAPA so that a single change is made at the end of a time unit as taught by Mayer in order to better control the playfield objects that are generated in response to and under the supervision of the instruction set (column 24, lines 48-52).

It is implicit that the time unit relates to the sampling period in some manner.

Regarding claims 1, 13 and 25 AAPA as modified by Mayer fails to disclose that the time unit is an integral multiple of the sampling period of said digital signals. Furthermore how one period of time relates to a sampling frequency is a matter of how a system is designed. The concept of a time unit being an integral multiple of a sampling period is well known in the art as taught by Sasson.

Sasson discloses a time period that is an integral multiple of the period of sampling frequency (column 6, lines 9-12).

It would have been obvious to modify AAPA as modified by Mayer by having the time period be an integral multiple of the sampling period so that less costly timing or synchronization components can be used.

6. **Claims 37-39** share common features.

Regarding **claims 37-39** the AAPA discloses an audio signal processing apparatus (Figure 1), comprising:

an audio signal processing unit for performing virtual acoustic image localization processing of digital audio signals based on at least one information type among position information, movement information, and localization information (2, Figure 4); and

information change generation means for generating, when a plurality of changes are made to said information within a prescribed time unit, single modified information within said prescribed time unit (1, Figure 4; page 3, Description of Related Art; The applicant's admitted prior art, Figure 7 teaches of a plurality of changes in what is implicitly some time frame. For AAPA teaches that localization processing of a plurality of virtual acoustic images is performed within the audio processing unit each time there is a change in the position or movement information and that the position and movement information is used to perform virtual acoustic image localization. Each time denotes a given time unit. For a given time unit one change in position or movement generates a single information.), wherein

said audio processing unit is controlled based on the single modified information generated by said information change generation means, to perform virtual acoustic

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image localization processing of said digital audio signals (pages 1-2, Description of Related Art) .

Regarding claim 39, the AAPA further discloses a storage means (3, Figure 4) for storing a plurality of synthesized audio signals obtained from localization processing.

The AAPA fails to disclose but Mayer teaches of generating a single change at the end of a prescribed unit of time based on said plurality of information changes (column 24, lines 26-35; Mayer discloses a data processing system with programmable graphics generators and teaches of waiting until the end of a next vertical blanking interval before transferring a next instruction after a jump instruction ; The plurality of changes being the changes in position of the electron gun that moves back up to a first line of the television screen. This is implicit to the vertical blanking interval; see column 23, line 64- column 24, line 5).

It would have been obvious to modify the AAPA so that a single change is made at the end of a time unit as taught by Mayer in order to better control the playfield objects that are generated in response to and under the supervision of the instruction set (column 24, lines 48-52).

It is implicit that the time unit relates to the sampling period in some manner.

Regarding claims 1, 13 and 25 AAPA as modified by Mayer fails to disclose that the time unit is an integral multiple of the sampling period of said digital signals. Furthermore how one period of time relates to a sampling frequency is a matter of how a system is designed. The concept of a time unit being an integral multiple of a sampling period is well known in the art as taught by Sasson.

Sasson discloses a time period that is an integral multiple of the period of sampling frequency (column 6, lines 9-12).

It would have been obvious to modify AAPA as modified by Mayer by having the time period be an integral multiple of the sampling period so that less costly timing or synchronization components can be used.

Regarding **claims 2,14 and 26**, AAPA as modified by Mayer and Sasson fails to explicitly teach wherein the step of generating a single information change is performed using only a last one of said information elements presented within said time unit. For a given time unit one change in position or movement generates a single information. Last is defined as most recent. This one change reads on last information change. It would have been obvious to generate a single information change using only the information presented last within said time unit to reproduce virtual image localization information using the most recent data.

6. **Claims 12,24, and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Pages 1-4, Description of Related Art; Figure 4) as applied to claims 1,13 and 25 above and Mayer et al. (US 4,296,476) as applied to claims 1,13 and 25 above and Sasson (US 4,695,874) as applied to claims 1,13 and 25 above, in further view of Inanaga et al. (US 5,796,843).

Regarding **claims 12,24 and 36**, the AAPA as modified by Mayer and Sasson fails to disclose but wherein the information for said audio signals can be modified according to user operations. Inanaga teaches of wherein the information for said audio signals can be modified according to user operations. The applicant's admitted prior

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art teaches of a game and that position, movement, fluctuation, other control information is received from external equipment (Figure 4) but fails to disclose that information for said audio signals can be modified according to user operations. Inanaga discloses a video signal and audio signal reproducing apparatus that corrects an audio signal with respect to a relative movement of user and a head movement of the listener with respect to a virtual sound source from a video reproducing means (column 4, lines 15-20). It would have been obvious to modify the AAPA as modified by Mayer and Sasson so that information for the audio signals can be modified according to user operations as taught by Inanaga in order to reproduce virtual localization information in real time.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848.

The Art Unit location of your application in the USPTO has changed. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Art Unit 2615. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF


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9/15/06